Chapter Two
Forecasts of Aviation Activity

Taylor Municipal Airport
Airport Master Plan

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INTRODUCTION

Forecasts of aviation activity serve as a guideline for the timing required for implementation of airport improvement programs. While such information is necessary for successful comprehensive airport planning, it is important to recognize that forecasts are only approximations of future activity, based upon historical data and viewed through present situations. They must therefore, be used with careful consideration, as they may lose their validity with the passage of time.

For this reason, an ongoing program of examination of local airport needs and national and regional trends is recommended and encouraged in order to promote the orderly development of aviation facilities at the Taylor Municipal Airport.

At airports not served by air traffic control towers, estimates of existing aviation activity are necessary in order to form a basis for the development of realistic forecasts. Unlike towered airports, non-towered general aviation airports have historically not tracked or maintained comprehensive logs of aircraft operations. Estimates of existing aviation activity, based upon a review of based aircraft, available historical data, available local information and regional, state and national data form the baseline to which forecasted aviation activity trends are applied.

Activity projections are made based upon estimated growth rates, area demographics, industry trends, and other indicators. Forecasts are prepared for the Initial-Term (0-5 years), the Intermediate-Term (6-10 years) and the Long-Term (11-20 years) time frames. Utilizing forecasts within these time frames will allow the construction of airport improvements to be timed to meet demand, but not so early as to remain idle for an unreasonable length of time.

There are four types of aircraft operations considered in the planning process. These are termed “local, based, itinerant and transient.” They are defined as follows:

Local operations are defined as aircraft movements (departures or arrivals) for the purpose of training, pilot currency or pleasure flying within the immediate area of the local airport. These operations typically consist of touch-and-go operations, practice instrument approaches, flights to and within local practice areas, and pleasure flights that originate and terminate at the airport under study.

Based aircraft operations are defined as the total operations made by aircraft based (stored at the airport on a permanent, seasonal, or long-term basis) at the study airport, with no attempt to classify the operations as to purpose.

Itinerant operations are defined as arrivals and departures other than local operations and generally originate or terminate at another airport. These types of operations are closely tied to local demographic indicators, such as local industry and business use of aircraft and usage of the facility for recreational purposes.

Transient operations are defined as the total operations made by aircraft other than those based at the airport under study. These operations typically consist of business or pleasure flights originating at other airports, with termination or a stopover at the study airport.

The terms transient and itinerant are sometimes erroneously used interchangeably. This study will confine analysis to local and itinerant operations.

NATIONAL AND REGIONAL TRENDS

According to factors such as aircraft production, pilot activity, and hours flown, general aviation reached a peak in the late 1970s. This peak was followed by a long downturn that persisted through most of the 1980s and the early 1990s and has been attributed to high manufacturing costs associated with product liability issues as well as other factors. The General Aviation Revitalization Act (GARA) of 1994 was enacted with the goal of revitalizing the industry by limiting product liability costs. The Act established an 18-year statute of repose on liability related to the manufacture of all general aviation aircraft and their components. According to a 2001 report to Congress by the General Accounting Office (GAO), trends in general aviation since GARA was enacted suggest that liability costs have been less burdensome to manufacturers, shipments of new aircraft have increased, and technological advances have been made. Indicators of general aviation activity, such as the numbers of hours flown and active pilots, have also increased in the years since GARA, but their growth has not been as substantial as the growth in manufacturing.

The unfortunate terrorist attacks of September 11, 2001 and the recent national recession have had a substantial impact on these positive general aviation industry trends. Significant restrictions were placed on general aviation flying following September 11th which resulted in a considerable decrease in general aviation activity. Fortunately, most of these restrictions have now been lifted and the Federal Aviation Administration (FAA) is forecasting continued growth in general aviation. The FAA annually convenes expert panels in aviation and develops forecasts for future activity in all areas of aviation, including general aviation. The FAA's most recent forecast predicts the general aviation aircraft fleet will increase at an average annual rate of 0.7 percent during the 12-year forecast period, with the number of active aircraft increasing from 211,040 in 2002 to 220,490 in 2014. The fleet of turbine aircraft is expected to increase at a greater rate than the fleet of piston aircraft; as a result, the number of piston aircraft, while continuing to increase, is expected to represent a smaller percentage of the total general aviation fleet. The General Aviation Manufacturer's Association (GAMA) produces activity forecasts based on general aviation hours flown. As shown in Table 2-1, the number of turbojet (TJ) hours is forecast to increase 90% from 2004 to 2014.

TABLE 2-1 NATIONAL GENERAL AVIATION FORECAST

	Hours Flown (in millions)				
Year	SE	ME	TP	TJ	Total
2004	18.1	2.9	2.1	3.1	30.2
2005	18.3	2.9	2.2	3.3	30.7
2006	18.4	2.9	2.1	3.6	31.1
2007	18.6	2.9	2.1	3.8	31.6
2008	18.7	2.9	2.2	4.1	32.2
2009	18.8	2.9	2.2	4.4	32.7
2010	18.9	2.9	2.2	4.7	33.2
2011	19.0	2.9	2.2	5.0	33.7
2012	19.1	2.9	2.2	5.3	34.2
2013	19.2	2.9	2.2	5.6	34.7
2014	19.3	2.9	2.3	5.9	35.2

Source: General Aviation Manufacturer's Association 2003 Statistical Handbook

Another industry trend is the increasing amount of research funding for programs like the Small Aircraft Transportation System (SATS). The National Aeronautics and Space Administration (NASA), Federal Aviation Administration, States, industry, and academic partners have joined forces to pursue the NASA National General Aviation Roadmap leading to a Small Aircraft Transportation System. This long-term strategic undertaking seeks to bring next-generation technologies and improved air access to small communities. The envisioned outcome is to improve travel between remote communities and transportation centers in urban areas by utilizing a new generation of single-pilot light aircraft for personal and business transportation between the nation's 5,400 public use general aviation airports. Current

NASA investments in aircraft technologies are enabling industry to bring affordable, safe, and easy-to-use features to the marketplace, including "Highway in the Sky" glass cockpit operating capabilities, affordable crashworthy composite airframes, more efficient IFR flight training, and revolutionary aircraft engines. To facilitate this initiative, a comprehensive upgrade of public infrastructure must be planned, coordinated, and implemented within the framework of the national air transportation system. State partnerships are proposed to coordinate research support in key public infrastructure areas. Ultimately, SATS may permit more than tripling aviation system throughput capacity by tapping the under-utilized general aviation facilities to achieve the national goal of doorstep-to-destination travel at four times the speed of highways for the nation's suburban, rural, and remote communities. A SATS conceptualization is shown in Figure 2-1.

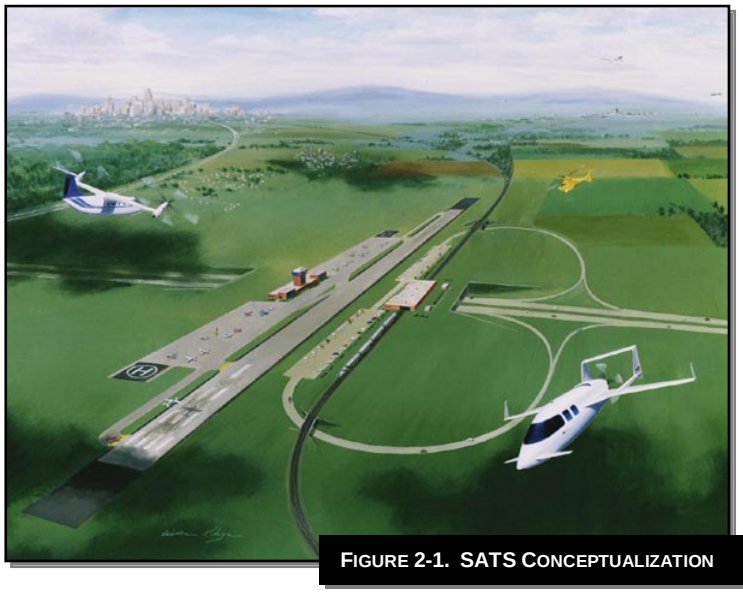

FIGURE 2-1. SATS CONCEPTUALIZATION

Source: NASA Nebraska Space Grant & EPSCoR

The continued growth in fractional ownership arrangements is yet another significant industry trend. Fractional ownership arrangements allow businesses and individuals to purchase an interest in an aircraft and pay for only the time that they use the aircraft. According to the National Business Aviation Association (NBAA), in 1986, there were three owners of fractionally held aircraft. By 1993, there were 110. From 2000 to 2002, the number of companies and individuals using fractional ownership grew by 52 percent, from 3,834 to 5,827 shares; the growth from 1999 (2,607) to 2002 was 124 percent. The number of airplanes in fractional programs grew 11 percent in 2002, from 696 to 776. The shift toward turbine aircraft is likely a result of the success of fractional ownership, the introduction of new types of turbine aircraft, and a transition from commercial air travel to corporate/business air travel as a result of September 11th.

AVAILABLE ACTIVITY FORECASTS

The first step in preparing aviation forecasts is to examine prior estimates and forecast figures. The FAA Terminal Area Forecasts (TAF) and the Arizona State Aviation Needs Study (SANS) 2000 were reviewed in June of 2004 for the Taylor Municipal Airport. The FAA TAF (January 2004) indicates 18 existing based aircraft for Taylor and 4,800 existing annual operations. The TAF numbers are forecast to remain constant through the year 2020. The Arizona SANS 2000 indicates 18 existing based aircraft and 4,800 existing annual operations at the Taylor Municipal Airport as well. However, the SANS 2000 includes a forecast of 24 based aircraft and 6,400 annual operations for Taylor by the year 2020.

FAA RECORDS OF BASED AIRCRAFT AND OPERATIONS

FAA Form 5010-1, *Airport Master Record*, is the official record kept by the Federal Aviation Administration to document airport physical conditions and other pertinent information. The record normally includes an annual estimate of aircraft activity as well as the number of based aircraft. This information is normally obtained from the airport sponsor. The accuracy of these documents varies directly with the sponsor's record keeping system. The FAA Form 5010-1 for the Taylor Municipal Airport indicates 18-based aircraft (10 single-engine and 8 multiengine) and 4,800 annual aircraft operations. This form also breaks down the Taylor operations to 1,100 Air Taxi, 3,000 GA Local and 700 GA Itinerant. This form is likely the source used for the existing based aircraft and operations counts shown in the FAA Terminal Area Forecast and the State Aviation Needs Study 2000.

EXISTING AVIATION ACTIVITY

According to the 2004 airport inventory and correspondence with the current airport manager, based aircraft and operations totals at the Taylor Municipal Airport dropped off dramatically with the closure of the FBO, Ponderosa Aviation, in June of 2002. Ponderosa Aviation provided many aviation services including on demand air charter and air taxi services at the airport.

There are currently five single-engine aircraft based at the Taylor Municipal Airport as shown in Table 2-2. The airport manager has also recorded operations during business hours at the airport from September of 2003 to September of 2004. The baseline activity levels for the purposes of this study are 5 aircraft and approximately 1,200 annual aircraft operations. These totals result in a reasonable 240 operations per based aircraft (OBPA).

TABLE 2-2 TAYLOR BASED AIRCRAFT

Type	Model	Tail Number
Single Engine Piston	Cessna 206	N4634U
Single Engine Piston	Experimental BD-4	N149RV
Single Engine Piston	Cessna 182	N9895M
Single Engine Piston	Cessna 172	N1421V
Single Engine Piston	Cherokee 180	N8619W

EXISTING BASED AIRCRAFT DEMAND

One of the existing based aircraft owners has indicated an interest in relocating to another airport and selling the T-hangar that this aircraft is stored in. However, the Town has also received inquiries from up to ten additional aircraft owners interested in basing at the Taylor Municipal Airport. Of these ten owners, six have indicated a strong interest in basing an aircraft as soon as adequate hangar space is available or land on the airport is made available to lease and allow the aircraft owner to build a hangar at his own expense. Subtracting the one existing based aircraft and adding the six new based aircraft results in 10 total aircraft. For purposes of forecasting based aircraft and operations at the Taylor Municipal Airport, it will be assumed that the based aircraft demand at the airport is 10 aircraft.

HISTORICAL BASED AIRCRAFT AND OPERATIONS

There is no accurate historical record of based aircraft and operations for the Taylor Municipal Airport. According to the 1988 Arizona State Aviation System Plan there were 16 based aircraft at the airport in 1987. According to the 1994 Airport Master Plan, there were also 16 based aircraft in 1993 and approximately 2,585 annual operations. The Town has kept no record of based aircraft and operations since 1994, however, it is estimated that the decrease in based aircraft and operations likely coincided with the departure of Ponderosa Aviation in June of 2002. There are currently no commercial service or air cargo operations at the Taylor Municipal Airport. The airport is not used for any military aircraft operations.

FORECASTS OF AVIATION ACTIVITY

BASED AIRCRAFT

A comparative analysis of based aircraft forecasts was accomplished using three methodologies to derive a preferred forecast of based aircraft for the Taylor Municipal Airport. The first method utilized a bottom-up per capita approach that projects the number of based aircraft in direct proportion to the projected combined population of Taylor and Snowflake. The existing population of Taylor/Snowflake was applied to the existing based aircraft demand developed in the previous section to estimate the per capita based aircraft demand, and was then applied to the Taylor/Snowflake population projections from Chapter 1. This resulted in 17 based aircraft at Taylor in 2025 (Table 2-3).

TABLE 2-3 PER CAPITA METHOD*

Year	Population	Aircraft
2005	9,142	10
2010	10,835	12
2015	12,528	14
2020	14,221	16
2025	15,914	17

*Preferred Based Aircraft Forecast

According to FAA Order 5090.3C, when forecast data is not available, a satisfactory procedure is to forecast based aircraft using the statewide growth rate from the January 2004 TAF and to develop activity statistics by estimating annual operations per based aircraft. The second forecasting method for based aircraft utilized the FAA's Terminal Area Forecast annual growth rate for the State of Arizona of 2% per year. This growth rate of 10% every five years results in approximately 15 based aircraft in Taylor in 2025 (Table 2-4).

TABLE 2-4 FAA TAF METHOD

Year	Based Aircraft
2005	10
2010	11
2015	12
2020	13
2025	15

The third forecasting method for based aircraft utilized a market share analysis based on the State Aviation Needs Study (SANS 2000) forecast of based aircraft for Navajo County. The 2005 SANS 2000 based aircraft projection for Navajo County was applied to the existing demand level to estimate Taylor's market share. This market share was then applied to the SANS 2000 aircraft projections. This resulted in 13 based aircraft in Taylor in 2025 (Table 2-5).

TABLE 2-5 MARKET SHARE METHOD

Year	Navajo County Based Aircraft	Taylor Market Share Aircraft
2005	111	10
2010	121	11
2015	128	12
2020	139	13
2025	147	13

The Per Capita growth rate method is recommended as the preferred based aircraft forecast. Once the airport's terminal area and hangar area are initially improved and the pending demand for basing aircraft is met, the airport is expected to at least keep pace with the population growth within the service area.

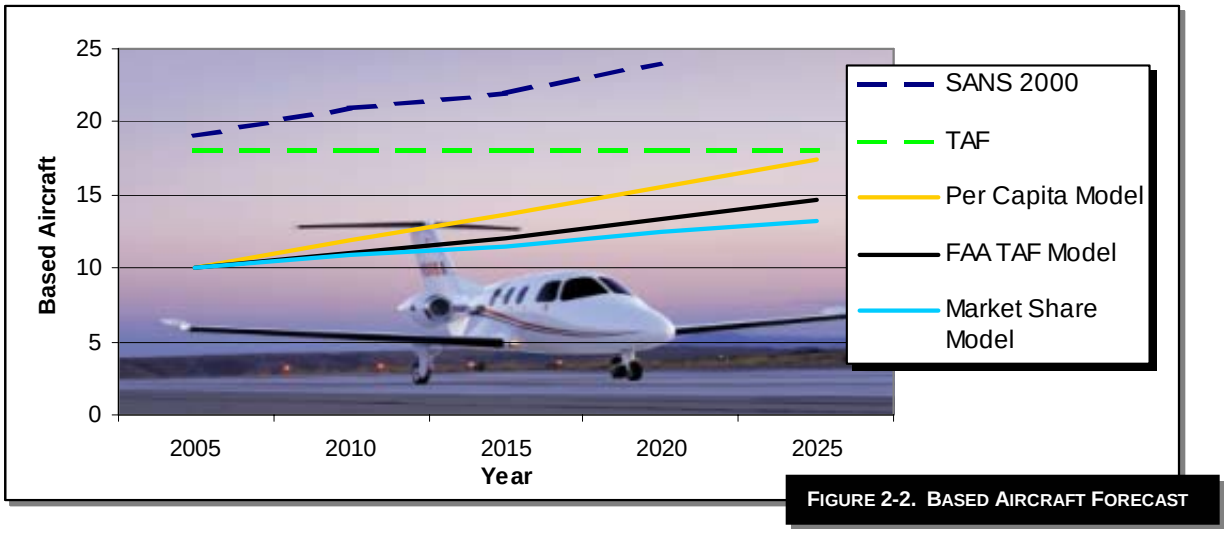

FIGURE 2-2. BASED AIRCRAFT FORECAST

OPERATIONS PER BASED AIRCRAFT (OPBA)

In order to develop a preferred method of forecasting aircraft operations at the Taylor Municipal Airport, a number of methods were analyzed. Each method utilizes the preferred based aircraft forecast developed in the previous section and applies an operations per based aircraft (OPBA) figure to the based aircraft forecast to develop a preferred operations forecast. For each method, operations are expected to significantly increase from 2005 to 2010 as the existing based aircraft demand is met. From 2010 to 2025, the OPBA at the airport are anticipated to remain constant. The methods are summarized as follows:

Method 1: Existing operations and based aircraft (240 OPBA)

Method 2: FAA Order 5090.3C (250 OPBA)

Method 3: All Arizona NPIAS GA Airports (459 OPBA)

Method 4: FAA Advisory Circular 150/5300-13 (679 OPBA)

Method 5: Arizona NPIAS GA Airports – 5 to 15 Based Aircraft (736 OPBA)

For the first method, the base year level of operations per based aircraft of 240 was applied to the preferred based aircraft forecast. Applying 240 OBPA to the preferred based aircraft forecast (Table 2-4) results in 3,514 annual operations in 2025.

A general guideline from FAA Order 5090.3C, *Field Formulation of the National Plan of Integrated Airport Systems (NPIAS)* of 250 OPBA for rural general aviation airports with little itinerant traffic was applied to the based aircraft forecast for Method 2. Applying 250 OPBA to the preferred based aircraft forecast results in 3,660 forecast operations in 2025.

For the third method, the average OPBA for all Arizona general aviation airports included in the NPIAS was calculated. This average was calculated by dividing the number of based aircraft by the number of operations at each airport according to the SANS 2000 data. The average was calculated to be 459 OPBA. Applying 459 OPBA to the preferred based aircraft forecast results in 6,720 annual operations in 2025.

The fourth method, as outlined in FAA Advisory Circular 150/5300-13, applied 637 OPBA (for NPIAS Public Use Airports) to the preferred based aircraft forecast. This method results in a forecast of 9,326 operations in 2025. For the fifth method, the average OPBA for Arizona general aviation airports included in the NPIAS with 5-15 based aircraft was calculated. The airports used in this analysis are shown in Table 2-6. This analysis resulted in an OPBA of 736 or 10,776 operations in 2025.

TABLE 2-6 AIRPORTS ANALYZED IN METHOD 5

Airport	Aircraft	Operations	OPBA
St. Johns	9	15,100	1,678
Window Rock	8	2,050	256
Bisbee Municipal	10	1,806	181
Cochise County	15	7,096	473
H.A. Clark Memorial	12	3,600	300
Colorado City	11	3,680	335
Holbrook Municipal	10	4,650	465
Whiteriver	8	5,000	625
Winslow-Lindberg	15	27,650	1,843
Ajo Municipal	5	1,500	300
Bagdad	14	14,000	1,000
TOTALS	**117**	**86,132**	**736**

These estimates provide a likely range of activity for future operations at the Taylor Municipal Airport and are shown in Figure 2-3. For planning purposes, Method 3 was selected as the preferred operations forecast for the Taylor Municipal Airport.

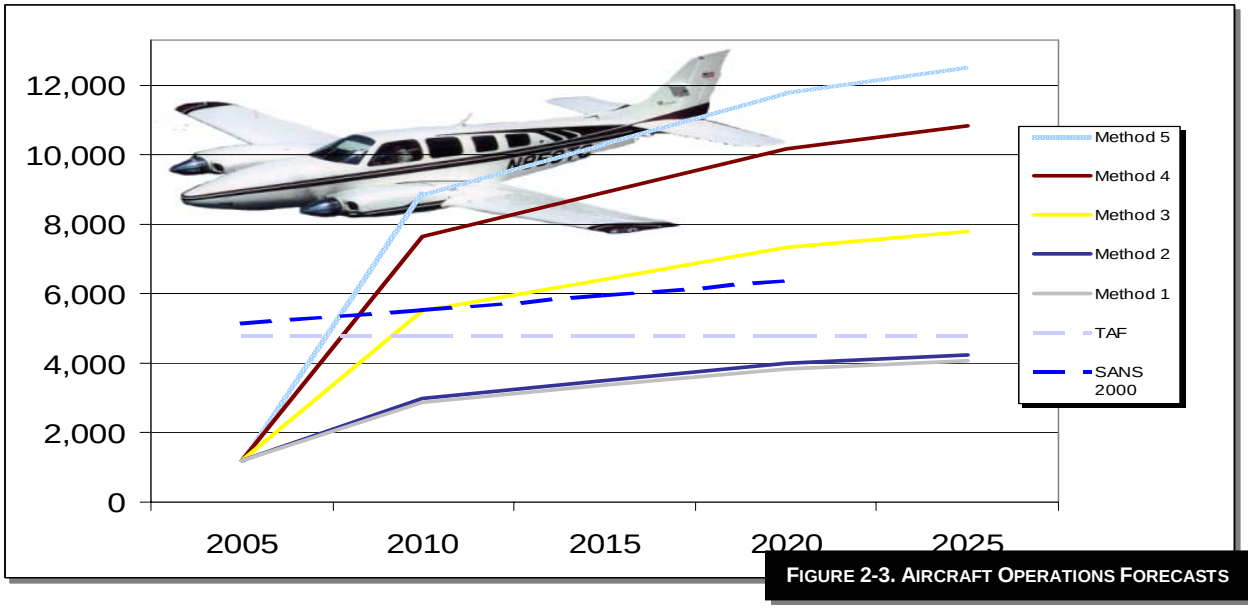

FIGURE 2-3. AIRCRAFT OPERATIONS FORECASTS

ITINERANT AND LOCAL OPERATIONS

Local operations consist primarily of training and recreational flights in the area. The remaining itinerant flights primarily consist of personal transportation, business transportation, and recreational flights to and from other airports. The percentage of local versus itinerant operations is expected to trend toward the Arizona average of 58 percent itinerant and 42 percent (Table 2-7) local based on the anticipated airport users and fleet mix described in the following section. Anticipated users whose operations would likely be considered local include ranchers, aerial observation and surveying, recreation and tourism, fire management, and flight training.

TABLE 2-7 PREFERRED FORECAST OF AVIATION ACTIVITY

Year	Based Aircraft	Local Operations	Itinerant Operations	Total Operations
2005	10	156	1,044	1,200
2010	12	1,102	4,406	5,508
2015	14	1,799	4,627	6,426
2020	16	2,570	4,774	7,344
2025	17	3,277	4,526	7,803

AIRPORT USERS AND FLEET MIX

Interviews with existing and potential users indicate the following types of operations are anticipated for the Taylor Municipal Airport:

Ranchers: Ranching is one of the primary economic activities in this part of Arizona due to the vast expanse of ranch land. Aircraft are often used in ranching to inventory and locate livestock.

Aerial Observation and Surveying: With close proximity to the Apache-Sitgreaves National Forest, the airport may provide a location for government agencies and private individuals to conduct environmental surveys, wildlife counts, and other studies. Slow flying, single-engine aircraft are generally the preferred type of aircraft for this use.

Business Transportation: The Taylor/Snowflake area is approximately a one-hour flight in a single-engine general aviation aircraft to Albuquerque, Phoenix, or Tucson versus a driving time of approximately 3.5 to 4.5 hours. Business aviation users benefit by being able to travel to or from these business centers to conduct business activities in a single day, without requiring an overnight stay or extensive ground travel time. Local and other small businesses will generally utilize single-engine and multi-engine piston aircraft. Medium sized businesses and larger corporations having a need to travel to the Taylor/Snowflake area would generally utilize multi-engine piston and turboprop aircraft, and light to medium business jets respectively. This user category also includes state and federal agencies and travel by government officials.

Personal Transportation: These users desire the utility and flexibility offered by general aviation aircraft. The types of aircraft utilized for personal transportation vary with individual preference and resources and generally include a mix of single-engine, multi-engine and in some cases turbojet aircraft.

Recreational and Tourism: These users include transient pilots flying into the region to visit recreational and tourist attractions. These users mostly utilize single-engine piston aircraft; however, a small percentage may operate multi-engine piston aircraft. Other types of aircraft in this category include home-built, experimental aircraft, gliders and ultralights.

Fire Management: Air tanker operations are predominately conducted out of the Show Low Municipal Airport. A fixed or temporary air tanker facility for fixed wing aircraft is not anticipated at the Taylor Municipal Airport due to the proximity to Show Low. However, a future fire the size of the 2002 Rodeo-Chediski fire may increase the potential of Taylor being used as an emergency air tanker facility. A mix of single-engine and multi-engine aircraft would likely conduct these operations.

Air Medivac and Medical Services: Air Medivac provides essential emergency medical transport in life threatening situations. Medical services users would be physicians traveling into the airport to provide medical or dental services in the Taylor/Snowflake area. These users utilize a variety of multi-engine turboprop and turbojet aircraft such as Cessna 421's, Beech King Airs, Pilatus PC-12s and Lear Jets.

Flight Training: These users conduct local and itinerant flights in order to meet flight proficiency requirements for obtaining FAA pilot certifications. These flights include touch-and-goes, day and night local and cross-country flights, and simulated approaches. Pilot certifications include Sport, Private, Instrument, Commercial, Instructor, and Air Transport ratings. Depending on the level of interest and aircraft availability, a multi-engine rating may or may not be available. A commercial rating may be accomplished with either a single-engine or multi-engine aircraft. Air transport ratings are usually obtained at larger regional FAR Part 121 certificated flight schools.

Search and Rescue: With close proximity to the Apache-Sitgreaves National Forest, local aircraft owners and pilots may be requested to assist in search and rescue efforts in the area. The Civil Air Patrol (CAP), a non-profit aviation-related organization is commonly known for providing these types of services on a volunteer basis. CAP also provides mentoring, flight instruction, and in some cases aircraft rentals for members and trainees (Cadets). Generally, small single-engine aircraft are used for this purpose.

Table 2-8 Detailed Forecasts by Aircraft Type

		2005	2010	2015	2020	2025
Single Engine Aircraft		10	11	12	12	11
	Operations	1,140	4,902	5,526	5,802	5,072
Multi Engine Piston/Turbo Prop Aircraft		0	0	1	1	2
	Operations	48	275	450	588	858
Turbo Jet Aircraft		0	0	0	1	1
	Operations	12	110	193	294	468
Rotorcraft		0	0	0	0	0
	Operations	0	55	64	147	234
Experimental & Other		0	1	1	2	3
	Operations	0	165	386	661	1170
Annual Operations		1,200	5,508	6,426	7,344	7,803

Based on these types of uses, local operations are expected to be conducted by predominately single-engine aircraft. Itinerant operations are expected to trend from primarily single engine piston aircraft towards the GAMA forecast fleet mix of 65% single-engine, 11% multi-engine, 6% jet, 3% helicopter, 15% experimental and other. These trends were applied to the operations forecast to derive the forecast by aircraft type shown in Table 2-8. The Learjet 25 in Figure 2-4 is an example of the types of business jet activity that that is projected to increase at the airport.

FIGURE 2-4. LEAR 25 AT TAYLOR

AIRPORT SEASONAL USE DETERMINATION

A seasonal fluctuation in aircraft operations may be expected at any airport. This fluctuation is most apparent in regions with severe winter weather patterns and at non-towered general aviation airports. The fluctuation is less pronounced at major airports, with a high percentage of commercial and scheduled airline activity.

Non-towered airports generally experience a substantially higher number of operations in summer months than off-season months. The average seasonal use trend for FAA towered airports from the 1979-1984 records (total aircraft operations handled by tower facilities nationally from *FAA Statistical Handbook of Aviation*) was used as a baseline for determining seasonal use trends. As discussed above, the seasonal fluctuation is more pronounced at non-towered airports than towered airports. The seasonal use trend for towered airports was adjusted to approximate seasonal use trends at non-towered airports. This is presented in Table 2-9 and in Figure 2-5.

TABLE 2-9 SEASONAL USE TREND

Month	Non-towered	Towered
January	3.5%	7.2%
February	4.0%	8.2%
March	4.8%	8.6%
April	7.5%	9.0%
May	11.3%	9.1%
June	13.5%	9.4%
July	14.8%	9.1%
August	13.0%	8.7%
September	10.0%	8.7%
October	8.0%	7.8%
November	5.8%	7.1%
December	3.8%	7.1%

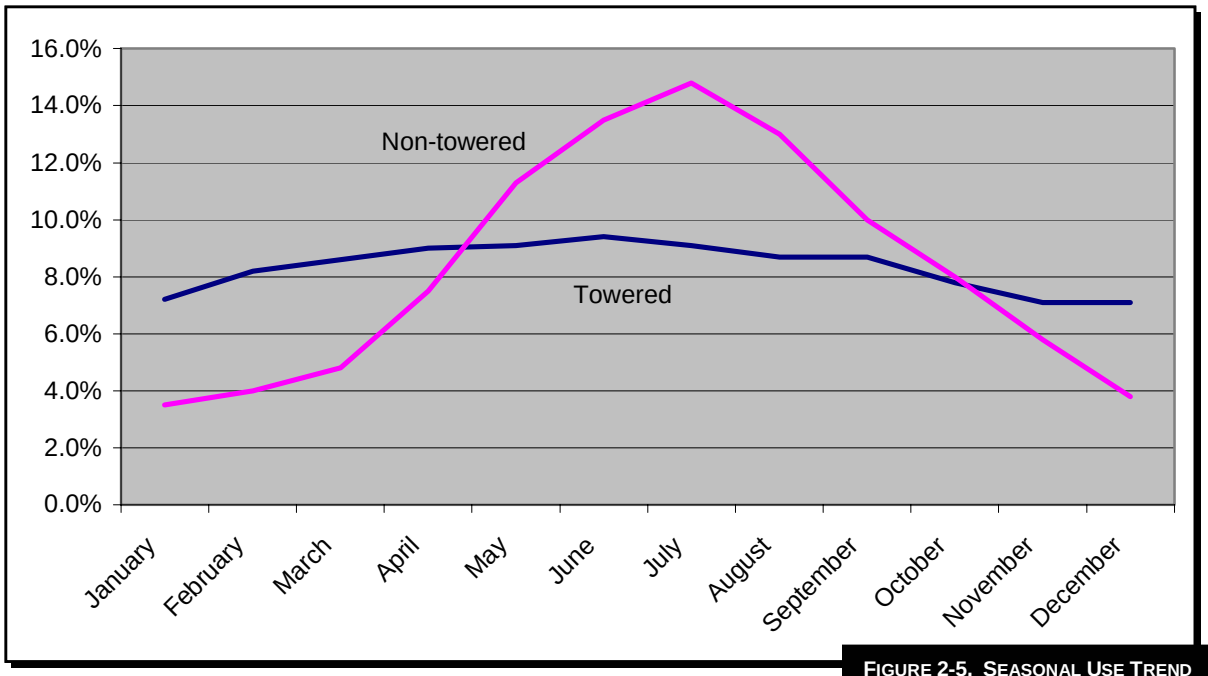

FIGURE 2-5. SEASONAL USE TREND

HOURLY DEMAND AND PEAKING TENDENCIES

In order to arrive at a reasonable estimate of demand at the airport facilities, it was necessary to develop a method to calculate the levels of activity during peak periods. The periods normally used to determine peaking characteristics are defined below:

Peak Month: The calendar month when peak enplanements or operations occur.

Design Day: The average day in the peak month derived by dividing the peak month enplanements or operations by the number of days in the month.

Busy Day: The Busy Day of a typical week in the peak month. In this case, the Busy Day is equal to the Design Day.

Design Hour: The peak hour within the Design Day. This descriptor is used in airfield demand/capacity analysis, as well as in determining terminal building, parking apron and access road requirements.

Busy Hour: The peak hour within the Busy Day. In this case, the Busy Hour is equal to the Design Hour.

The Seasonal Use Trend Curve, as presented in Table 2-9, was used as a tool to determine the peaking characteristics for the Taylor Municipal Airport. Using the Seasonal Use information, a formula was derived which will calculate the average daily operations in a given month, based on the percentage of the total annual operations for that month, as determined by the curve. The formula is as follows:

$$M = A (T / 100)$$
$$D = M / (365 / 12)$$

Where T = Monthly percent of use (from curve)
M = Average monthly operations
A = Total annual operations
D = Average Daily Operations in a given month

Approximately 90% of total daily operations will occur between the hours of 7:00 AM and 7:00 PM (12 hours) at a typical general aviation airport, meaning the maximum peak hourly occurrence may be 50% greater than the average of the hourly operations calculated for this time period.

The Estimated Peak Hourly Demand (P) in a given month was, consequently, determined by compressing 90% of the Average Daily Operations (D) in a given month into the 12-hour peak use period, reducing that number to an hourly average for the peak use period, and increasing the result by 50% as follows:

$$P = 1.5 (0.90D / 12)$$

Where D = Average Daily Operations in a given month.
P = Peak Hourly Demand in a given month.

The calculations were made for each month of each phase of the planning period. The results of the calculations are shown in Table 2-10. As is evident in the Table, the Design Day and Design Hour peak demand in the planning year occurs under VFR weather conditions in the month of July (highlighted in bold in each Table), with 38 daily operations and approximately 4.3 operations per hour in 2025.

TABLE 2-10 ESTIMATED HOURLY DEMAND/MONTH

MONTHLY/DAILY/HOURLY DEMAND

Planning Year: 2010
Operations: 5,508

Month	% Use	Operations Monthly	Daily	Hourly
January	3.5	193	6	0.7
February	4.0	220	7	0.8
March	4.8	264	9	1.0
April	7.5	413	14	1.6
May	11.3	622	20	2.3
June	13.5	744	24	2.7
July	**14.8**	**815**	**27**	**3.0**
August	13.0	716	24	2.7
September	10.0	551	18	2.0
October	8.0	441	14	1.6
November	5.8	319	10	1.1
December	3.8	209	7	0.8

Planning Year: 2015
Operations: 6,426

Month	% Use	Operations Monthly	Daily	Hourly
January	3.5	225	7	0.8
February	4.0	257	8	0.9
March	4.8	308	10	1.1
April	7.5	482	16	1.8
May	11.3	726	24	2.7
June	13.5	868	29	3.3
July	**14.8**	**951**	**31**	**3.5**
August	13.0	835	27	3.0
September	10.0	643	21	2.4
October	8.0	514	17	1.9
November	5.8	373	12	1.4
December	3.8	244	8	0.9

Planning Year: 2020
Operations: 7,344

Month	% Use	Operations Monthly	Daily	Hourly
January	3.5	257	8	0.9
February	4.0	294	10	1.1
March	4.8	353	12	1.4
April	7.5	551	18	2.0
May	11.3	830	27	3.0
June	13.5	991	33	3.7
July	**14.8**	**1,087**	**36**	**4.1**
August	13.0	955	31	3.5
September	10.0	734	24	2.7
October	8.0	588	19	2.1
November	5.8	426	14	1.6
December	3.8	279	9	1.0

Planning Year: 2025
Operations: 7,803

Month	% Use	Operations Monthly	Daily	Hourly
January	3.5	273	9	1.0
February	4.0	312	10	1.1
March	4.8	375	12	1.4
April	7.5	585	19	2.1
May	11.3	882	29	3.3
June	13.5	1,053	35	3.9
July	**14.8**	**1,155**	**38**	**4.3**
August	13.0	1,014	33	3.7
September	10.0	780	26	2.9
October	8.0	624	21	2.4
November	5.8	453	15	1.7
December	3.8	297	10	1.1

INSTRUMENT OPERATIONS

According to the FAA TAF, 45 percent of the total aircraft operations in Arizona are instrument operations. According to the TAF, this number is forecast to increase to 51 percent by 2020. Since virtually all commercial and business jet flights and most military aircraft flights are IFR, the number of instrument operations does not reflect the occurrence of instrument weather or the provision of instrument approaches at airports. At most general aviation airports with an instrument approach and no commercial service or military activity, instrument operations will comprise approximately 2-5 percent of total operations. The majority of general aviation operations are under VFR, however, based on anticipated airport users and the existing GPS non-precision instrument approach to Runway 21, there are likely a small number of instrument operations annually at Taylor Municipal Airport. Business transportation and air medivac/air ambulance are the most likely users of the instrument approach at Taylor with annual instrument operations estimated at approximately 2 percent of total operations.

FORECAST SUMMARY

Multiple forecasts were prepared for the Taylor Municipal Airport. Activity estimates were made for based aircraft operations and the ultimate fleet mix at the airport. These forecasts represent low, medium and high expected activity trends. The FAA TAF forecasts based aircraft and operations to remain constant over the 20 year planning period. However, the interest in basing aircraft at the airport shows the potential demand at the airport. This demand is currently constrained by the lack of available hangar space and the lack of a future terminal area plan at the airport. Once a terminal area plan is developed, the Town of Taylor can begin leasing ground on the airport to allow aircraft owners to construct hangars at the airport. Another option for the Town of Taylor is to construct hangars and lease the hangar space to these aircraft owners. This potential demand for basing aircraft and operating at the Taylor Municipal Airport explains why the master plan preferred forecasts exceed the TAF forecasts. Table 2-11 shows the forecast summary for the Taylor Airport Master Plan. There are no known or forecast military operations at the airport.

TABLE 2-11 FORECAST SUMMARY

	Enplanements			Itinerant Operations					Local Operations				
Year	AC	COMM	TOTAL	AC	AT & COM	GA	MIL	TOTAL	GA	MIL	TOTAL	TOT OPS	INST OPS
2005	0	0	0	0	0	1,044	0	1,044	156	0	156	1,200	24
2010	0	0	0	0	0	4,406	0	4,406	1,102	0	1,102	5,508	110
2015	0	0	0	0	0	4,627	0	4,627	1,799	0	1,799	6,426	129
2020	0	0	0	0	0	4,774	0	4,774	2,570	0	2,570	7,344	147
2025	0	0	0	0	0	4,526	0	4,526	3,277	0	3,277	7,803	156